Curricula can play a significant role in school life. Directed by a district's curriculum, instruction must meet the educational goals and objectives stated in the curriculum. It is crucial, therefore, that its articulation and interpretation are compatible with critical thinking. A curriculum heavily loaded with detail, for example, may restrict the teacher's freedom to emphasize critical thinking by requiring large amounts of information to be covered quickly and superficially. Curriculum may also draw attention away from critical thinking by emphasizing goals, activities, and instruction contrary to critical thought or by being linked to tests that focus on recall. Some curricula mention critical thinking in vague, superficial, or narrow ways, creating confusion and mis-instruction. One of the most significant problems is the neglect of the essential role of critical thinking in the student's acquisition of knowledge. Rarely is the concept of knowledge analyzed. Instead, articulation assumes that all educators know what knowledge is and how it differs from opinion, belief, or prejudice. Any attempt to make critical thinking a significant part of the educational life of students must involve a restructuring of the curriculum, making explicit the philosophy of knowledge and learning that underlie its writing and direct its implementation. This chapter offers suggestions for analyzing, evaluating, and remodelling curricula to emphasize education based on principles of critical thought, coherently integrated into a rich philosophy of education.

Curriculum: What is it?

Written curricula can and do appear in a variety of forms. The Oxford English Dictionary defines curriculum as: "A course; specifically a regular course of study or training, as at a school or university." Some curricula written in this narrow sense list the particular courses students are to study, detailing the content of these courses, and perhaps even including course outlines. Curricula of this type are often restrictive and often rely heavily on a memorization/recall method of instruction, severely limiting teacher freedom, creativity, and individuality.
Most curricula are more complete than this, broader in scope, addressing much more than content and outline. Generally, curricula are best thought of as a conception, written or presupposed in practice, of what to teach and how to teach it. More complete curricula contain, therefore, all or most of the following elements, each of which is a possible source of problems: philosophy, goals, standards, curriculum and instructional objectives, assessment, and instructional examples. Let us first consider each element in order, from general to specific.

**Philosophy:** A theory or logical analysis of the principles underlying education, knowledge, teaching, and learning, including assumptions about educational purposes and practices intended to influence or direct all subsequent curriculum formulations and applications.

**Commentary:** There are two major problems to watch out for here: 1) either the philosophy articulated is too vaguely expressed to be more than a set of empty platitudes, or 2) it is so narrowly expressed that it forces many teachers to accede to an approach that they do not and should not accept. The philosophy should provide a defensible analysis of the principles underlying education, knowledge, teaching, and learning which is open to alternative teaching styles, respects the individual differences between teachers, and is sufficiently clear and specific to have clear-cut implications for teaching and learning.

**Goals:** Usually an abstract statement of expected student attainment as a result of education.

**Commentary:** Goals should be written as unambiguously as possible. For critical thinking to be a significant element in the whole, some articulation of it must be visible throughout the goal statements.

**Standards:** A broad statement of expected student achievement on completion of a year's study within a specific subject area.

**Commentary:** If critical thinking is to play a significant role in instruction, then critical thinking standards must be explicit throughout. This is virtually never done.

**Curriculum Objectives:** A more specific statement of learning achievement shown by the student in any subject after completing the unit of study.

**Instructional Objectives:** Descriptions of minimal student achievement that should be demonstrated at the completion of one or more lessons.

**Commentary:** In both curriculum and instructional objectives, care must be taken not to imply lower order behavioral responses as the goal. These objectives should focus on the depth of student understanding, not, for example, on their ability merely to reproduce “correct” responses on recall oriented tests and assignments.

**Assessment:** Description of how student progress toward these goals, standards, and objectives is to be assessed; often used to assess teacher efficacy; rarely expressed, but implied by the Instructional Objectives.

**Commentary:** Again, care must be taken not to put the emphasis on lower order and multiple choice testing.

**Instructional Examples:** Curriculum may end with examples of instruction appropriate to the attainment of these goals, standards, and objectives.

**Commentary:** If the curriculum contains model instructional examples, they should explicitly display methods that encourage independent and critical thought.
The Importance of Philosophy of Education to Curriculum Construction

All curricula reflect some philosophy of education; however, often this philosophy is not expressed, but uncritically assumed. Whether expressed or assumed, some philosophy is, without exception, the basis of any formulation of educational purposes, goals, and objectives. It determines, one way or another, the nature of educational practice. It is clear that most curriculum writers do not consider the statement of philosophy to be a significant element, since they are often satisfied with a vague, platitudinous treatment. Some curricula include under “Philosophy” statements that are not, properly speaking, definitive of a philosophical perspective. In these cases, what is called “philosophy” is nothing more than a broad and general educational objective. Failure to make assumed philosophy explicit often leads to the development of curricula based on unacceptable or questionable educational assumptions which would be rejected if openly stated.

Sometimes the expressed philosophy is inconsistent with the methods of instruction or assessment. In these cases, the goals are often vaguely defined, obscuring the contradiction between curriculum objectives, instructional examples, and philosophy. For example, an educational “Philosophy” might emphasize the importance of autonomous and critical thought, while assessment focuses on testing which requires only recall and robotic practice of skills. Curriculum needs, then, an articulated theory of education, knowledge, teaching, and learning that guides all subsequent articulations of goals, objectives, and instructional examples. At the same time, the philosophy should not rule out alternative teaching styles, except those incompatible with independence of thought and other fundamental educational values (truth, fairmindedness, empathy, rationality, self-criticism).

Knowing and Thinking: A Model Philosophical Statement

Of fundamental and critical importance in any discussion of educational philosophy is the conception of knowledge and learning guiding the formulation of the curriculum. Since we can roughly understand curriculum as a course of study which has knowledge as its objective, those involved in both curriculum development and teaching should be clear about their answers to such questions as these: “What is knowledge? How do humans acquire knowledge? How are students best taught so they acquire genuine knowledge?” These questions may seem to have obvious answers or to be irrelevant to practical problems of instruction, but they are not. Indeed, one fundamental obstacle to educational reform is a set of misconceptions about knowledge embedded in teaching practice.

One persistent unexpressed misconception is that knowledge consists of bits and pieces of information to be implanted in the student’s mind by the teacher and materials. Knowledge is unwittingly considered to be a thing that can be put into students’ heads as some object might be put into their hands. Didactic instruction becomes dominant, and instruction is reduced to giving students information (principles, values, facts, etc.) to accept as true and commit to memory. Memorization and recall then become the fundamental modes of thought, and students study to reproduce the “correct answers” given to them by the teacher or text. Curriculum based on this misconception of knowledge confuses the mere appearance of knowledge with genuine knowledge. A parrot or tape recorder, let us not forget, is not a knower. Many who verbally reject rote learning unwittingly continue to encourage it simply because they fail to examine the philosophy underlying their instruction. Some practitioners also unknowingly undermine whatever
effort they exert to break out of this mold by continually assessing student progress in ways that encourage memorization and recall rather than depth of understanding.

A particularly significant misconception in this model is that if one has the "stuff" of knowledge, one will automatically reason well. The power of reasoning, in this view, naturally follows the acquisition of information, and need not, indeed cannot, precede or accompany it. Students are expected to get the information first, and then through it, start to think. Unfortunately, because of the amount of information taken to be essential, the time for thought is put off later and later. Furthermore, students who passively and uncritically accept information, do not go on to think critically once they learn to parrot it. The habits of learning they established in getting information transfer to subsequent learning. Information parrots become parrots of thinking.

Content dense curricula often create fragmented and un-engaging instruction. Subjects become isolated units having little or no relation to each other, and are often defined in terms of a long list of fragmented specifics. Students rarely see how parts relate to the whole, or to their lives outside school. As a result, both teacher and student come to think of knowledge as bits of information grouped under the general heading of one or another subject. Under the heading "science," for example, are many subheadings: biology, astronomy, physiology, chemistry, physics, geology, and so on, with each subheading containing the bits of information that constitute that field.

The conception of knowledge and learning presupposed in the didactic paradigm of memorization and recall is deceptive. It produces the illusion and confidence of knowledge without the substance, without the comprehension and understanding essential to any valid claim to knowledge. Remember, though people claim to know many things, a claim to know does not, in and of itself, certify actual knowledge. To claim knowledge is to imply not only that the thing claimed is true, but also that the knower understands the claim and the reasons for making it. The strength of one's conviction does not attest to its truth. There is often conviction in prejudice, certitude in gossip, rumor, and hearsay, confidence in unjustified authority, and blind faith in tradition. Students must grasp the difference between belief and knowledge. Blind memorization blurs that distinction.

Consider how a person moves from believing a rumor to ascertaining its truth, from believing the claim of some authority to verifying, and thus knowing, its truth. This shift from believing to knowing requires the active engagement of thought; it requires looking for and assessing reasons for and against. The person who has moved from belief to knowledge understands the claim and the reason for it. This person can justify it. Knowledge exists only in minds that have comprehended and justified it through thought. Knowledge is something we must think our way to, not something we can simply be given. Knowledge is produced by thought, analyzed by thought, comprehended by thought, organized by thought, evaluated, refined, maintained, and transformed by thought. Knowledge can be acquired only through thought. The educational philosophy underlying educational goals, standards, and objectives should be based on an accurate and full conception of the dependence of knowledge on thought.

This conception of knowledge, that it exists only in and through critical thought, should pervade the whole of the curriculum. All of the disciplines — mathematics, chemistry, biology, geography, sociology, history, philosophy, literature, composition, and so on — are modes of thought. Remember, we know mathematics, not to the extent that we can recite mathematical formulas and apply them upon request, but only to the extent that we can think mathematically. We know science, not to the extent that we can recall information from our science textbooks and have gone through a series of actions described in a lab manual, but only to the extent that we can think scientifically. We understand sociology, history, and philosophy only to the extent that we
can think sociologically, historically, and philosophically. We understand and can truly hold such values as freedom of speech and thought, tolerance for honest differences and plurality, and civic responsibility only to the extent that we have honestly examined the reasons for them and the practical consequences of holding them. When we teach courses in such a way that students pass without thinking their way into the knowledge that these subjects make possible, students leave without any more knowledge than they had initially. When we sacrifice thought to gain coverage, make no mistake, we sacrifice knowledge at the same time. The issue is not “Shall we sacrifice knowledge to spend time or thought?”, but “Shall we continue to sacrifice both knowledge and thought for the mere appearance of learning, for inert, confused learning?”

As an illustrative example, consider history. In history classes, students expect to be given names, events, dates, places, and explanations to repeat on papers and tests. Teachers typically tell students what events occurred, their causes, their results, and their significance. When asked, students can say that understanding the past is important to understanding the present, but they do not take this seriously. They see no useful application of what they study in history classes, and so are frequently bored. History seems to them a dull drudgery, with no real purpose or significance, except to those who need to know it: teachers.

Consider history taught as a mode of thought. Viewed from the paradigm of a critical education, blindly memorized content ceases to be the focal point. The logic of historical thought—that is, learning to think historically by thinking historically—becomes the focal point. Students learn the content of history, in other words, while learning to think historically. They learn by experience that history is not a simple recounting of past events, but also an interpretation of these events from a point of view. In recognizing that each historian writes from a point of view, students can begin to identify and thus assess the points of view leading to various interpretations and propose their own interpretations based on alternative points of view. They can learn that historical accounts are not necessarily a matter of simple “true or false”. The student of history has to assess the gain and loss of alternative conflicting accounts. To begin to recognize this fundamental logic of historical thought, students could explore the significance of their own personal history and the relationship of their past to their present. They could begin to see that their past and the way they interpret it significantly influences their perception of their present and anticipation of their future. Understanding their own interpretations and constructions of personal history becomes an important tool for understanding the present. From here it is a short step to recognizing the importance of cultural, national, and world history in understanding the present, as well as understanding the news as a mode of historical thinking. They learn, in short, to think historically. They not only gain historical information and insights, but also acquire skills, abilities, and values.

Knowledge, Skills, and Values: The Philosophical Statement

Continued

Knowledge is a tool we use for many purposes: to explain, illuminate, answer, clarify, settle, solve, inform, perform, and accomplish. Divorced from its use, from the skills entailed by getting and using it, knowledge is empty. Indeed, one does not really know something if one does not understand its verification or purpose. To come to know anything, then, requires one to acquire the skills embodied in it. Schooling based on a didactic, lecture-drill-test, paradigm assumes that in giving students bits of information, they have, or will get, the skills embodied in the knowledge.
This is much too optimistic, for students frequently see no sense to, nor use for, the information they accumulate. Furthermore, not learning information in the context of its use, they have no sense of how to use it. This lack cannot be made up for by mere reiteration of those uses.

Also entailed by knowledge is the notion of value. No one learns what they do not in some sense value. Knowledge has value because of its use. We value what it allows us to accomplish. Consider, for example, the things that students do value, how quickly they learn these things, how much they know about them, and how well they retain and use what they really come to know. A list would include sports, both professional and personal (skate-boarding, bicycling, etc.), music, television and movies, cars, fashions and styles, arcade games, and so on. Taking any one of these, say skate-boarding, it is easy to see the connection between knowledge, skills, and values. Students who value skate-boarding spend much time and energy learning the differences between available wheels, trucks, and boards, the advantages and disadvantages of each, the kind of riding best suited to each, and how well these components work together. They then use this knowledge to assemble a board adequate to the kind of riding they prefer. Difficulties do not dampen their enthusiasm to learn. Contrast this with someone who does not value skate-boarding, but who must, for some reason, learn the same information about wheels, trucks, and boards. Although we can, with some difficulty, get the uninterested student to memorize some of the same information as the interested student, the difference in the level of understanding and retention between the two is large. We could say that those who simply memorize the information do not really know about skate-boarding, but have only transitory — and typically confused — information. They do not value the information they have about skate-boarding because they do not value skate-boarding. They ineptly apply it. They confuse it. They distort it. They forget it.

Many skills and values gained by learning a body of knowledge have application beyond that body of knowledge. Many skills and values can be transferred to a wide variety of domains of thought. An education emphasizing critical thinking fosters transfer by stimulating students to use their own thinking to come to conclusions and solutions, to defend positions on issues, to consider a wide variety of points of view, to analyze concepts, theories, and explanations, to clarify issues and conclusions, to evaluate the credibility of authorities, to raise and pursue root questions, to solve non-routine problems, to try out ideas in new contexts, to explore interdisciplinary connections, to evaluate arguments, interpretations, and beliefs, to generate novel ideas, to question and discuss each other’s views, to compare perspectives and theories, to compare ideals with actual practice, to examine assumptions, to distinguish relevant from irrelevant facts, to assess evidence, to explore implications and consequences, and to come to terms with contradictions, paradoxes, and inconsistencies. These intellectual skills and abilities cut across traditional disciplinary boundaries. They apply equally well to science as to language, to mathematics as to social studies, and have relevance to and significance in non-academic spheres of student life as well. To gain knowledge through critical thinking is to empower the student as a thinker, learner, and doer.

A Moment For Reflection

At this point, we recommend that the readers spend a few minutes reviewing the last two sections with the following question in mind: "How does this expression of philosophy of education compare to those I have read in the curriculum statements I have seen?" Most importantly, compare the above philosophy of education, the interrelation of knowledge, critical thinking, and values, to the sketchy objectives that often pass for a philosophy of education in standard curriculum.
Curriculum: Formulations and Reformulations

The problem with most of the goals and objectives of many curricula is that they are deeply vague and ambiguous. Lacking specificity, they are subject to many, even conflicting, interpretations and implementations. Ambiguous goals and objectives are often interpreted in ways that result in lecture and testing for retention of information, rather than in ways that emphasize principles of critical thought.

Another problem is that, although many of these goals and objectives complement each other, curricula present them as though they were separate and disconnected. A serious attempt to achieve any of the major goals involves linking goals with the other goals complementary to them. Otherwise, the result is superficial coverage of multiple topics. If nothing else, combining multiple but complementary goals and objectives saves time. Fortunately, whenever we approach our objectives deeply, we accomplish multiple goals simultaneously. By moving from the surface to depth, students learn more content skills, and see their value. They learn more, not because they "cover" more, but because they forget less and are able to generate more, that is, they see the implications of what they learn. This emphasis on depth of learning is sometimes called "high content".

A Model Case

What follows are examples of suggestions for curriculum development taken from the Cooperative County Course of Study: Guide to a Balanced, Comprehensive, Curriculum, 1984-1987, assembled and published by the California County Superintendents Association and the California State Steering Committee for Curriculum Development and Publications. (Published by Office of the Alameda Superintendent of Schools, California, 1984. Kay Pacheco, project director.) This document provides some excellent suggestions for curriculum development and some well thought-out examples of instructional techniques. However, it lacks an over-arching philosophy of education and creates an unwitting vacillation between didactic and critical modes of instruction. At times it emphasizes rote learning, at others, deeper, more critical discussion of the material. There are also ambiguities and vaguenesses in it, contributing to potential confusion regarding the goals and objectives. Examples below illustrate how these problems can lead to confusion in instruction. A remodelled curriculum that eliminates much of the vagueness and ambiguity of the original follows each cited example. Questions and comments follow, to elucidate the kinds of problems inherent in the original curriculum. This serves as a model for the kind of questioning that could be done when evaluating curricula. We do not comment on all of the objectives listed under the goals.

English Language Arts/Reading

This section is divided into six areas, each with a goal for the area, several objectives for reaching that goal, and sample learner behaviors corresponding to the various grade levels. The six areas and their stated goals are:

* (Original Curriculum)
  * **Listening and Speaking:** To develop listening and speaking skill.
  * **Reading:** Develop reading skill.
  * **Writing:** Develop writing skill.
**Vocabulary/Grammar:** Develop appropriate use of words.

**Literature, Media, and Subjects:** Respond critically and creatively to appropriate literature, media, and subjects.

**Study and Locational Skills:** Use study and locational skills for independent living.

Under the first goal are five objectives students are to reach to have accomplished the goal. Contained in parentheses for each objective are the learner behaviors for students at the secondary school level.

**Original Curriculum**

**Goal 1:** To develop listening and speaking skills

**Objectives:**
1.1 To express facts and information received from listening.
1.2 To express personal and imaginative responses from listening.
1.3 To present ideas and information orally for various settings and purposes.
1.4 To gather information by listening and questioning.
1.5 To develop interpersonal communication skills.

**Learner Behaviors:**
- Rates the value of information gained from each member of a panel.
- Critiques the effectiveness of a media presentation.
- Uses facts and challenges opinions in a debate.
- Interviews and researches a person and writes an article.
- Understands the rules and procedures of formal groups, such as parliamentary procedure.

These goals are very vague, ambiguous, and, if not further explained, superficial. Each can, and will, be construed in any number of ways, based on the teacher's background, operant educational philosophy, and past practice.

Several questions come to mind regarding both the goal and objectives stated in the original curriculum. For example, Objective 1.1 of the original refers to the gathering of facts, and the accompanying “Learner Behaviors” speaks of rating those facts. What exactly do both of these mean? Should any statement claimed to be factual be taken as factual? Not at all. How, then, is fact to be distinguished from purported fact? Do all facts stated in a conversation have relevance to the issue under discussion? Not necessarily, but how is relevance to be decided? Is there a difference between facts and conclusions drawn from the facts? Quite, but how are the two distinguishable? Is a conclusion drawn from facts always a reasonable or justifiable conclusion? No, not always, but how are conclusions to be assessed? By the agreement or disagreement with students' own beliefs, prejudices, and preferences? We hope not. By the strength of the conviction of the speaker? Never. By the charismatic persuasiveness or forceful personality of the speaker? By no means. Curriculum that does not address these questions, or that ambiguously mentions them, is very likely to lead to instruction that confuses facts with purported facts, that fails to distinguish facts from conclusions, and that promotes an unreasonable acceptance or rejection of conclusions drawn from facts.

Consider how this goal and its objectives might be reworded to explicitly emphasize critical thinking. We can do so by remembering that knowledge must be actively constructed, not passively acquired, and by understanding in what sense active listening is a mode of critical thinking.

Reading, writing, and listening presuppose a range of similar skills, abilities, and values. Passive, uncritical reading, writing, speaking, and listening have common failings. They fail to recognize the problems for thought that each ability involves. In each case, for example, we need
to organize ideas, consider logical relationships, reflect upon experiences, and use imagination. If I am speaking to you, I have to decide what to say and how to say it. To do this, I need to clarify my own thoughts, provide elaborations and illustrations, give reasons and explanations, and consider implications and consequences. I need to evaluate and rank my ideas, emphasizing the main points and ordering the rest. I need to anticipate questions or problems you might have. I need to consider your point of view and background. I even need to assess your interest in what I am saying to determine how long or how far to pursue a line of thought.

If I am listening to you, I need to be prepared to raise questions to you or to myself as I actively attempt to make sense of what you are saying. These questions reflect critical thinking skills, and might include the following:
What is she getting at?
What is her purpose?
Do I need any further elaboration of any point made?
Do I see how the various points fit together?
How does what she is saying fit into my experience?
Do I understand why she is saying what she is saying?
Do I follow the implications?
Do I agree or disagree?
Should I pursue or drop the conversation?
Should I take this seriously or let it go in one ear and out the other?

Remodelled Curriculum

Goal 1.0: To develop critical listening and speaking skills

**Objectives**

1.1 In listening, to distinguish between a fact and a purported fact, between facts and conclusions; to critically assess conclusions. In speaking, to use facts and conclusions drawn from facts, using critical thinking principles whenever appropriate.

1.2 To express well thought-out responses from listening, using critical thinking principles whenever appropriate.

1.3 To distinguish between opinions and judgments of varying strengths, as in a rationally defensible opinion and an irrational or indefensible opinion, using critical thinking principles whenever appropriate.

**Learner Behaviors:**

Students insightfully discuss the degree to which a situation comedy realistically approaches the problems of everyday life, asking themselves: What is the problem, how is it approached and handled, how would this problem be handled in real life?

Uses facts and defensible opinions to challenge less defensible opinions in class discussion or debate. Demonstrates reasoned judgment by supporting things said with good reasons.

The remodeled curriculum makes it clearer that a listener is not a passive receptor of information, but participates in the conversation, striving to understand and to clarify, to question, probe, and test, to grapple with ideas and claims. Not only do students better understand the topic discussed and retain the information, they also acquire valuable intellectual skills. As students use these skills, they better appreciate their value, making it more likely that they continue to use them in other contexts. Speaking, also, ceases to be concerned with confidence only, but is seen as a primary method of expressing one's thoughts, ideas, and beliefs to another. Students not only recognize the importance of knowing how to express oneself intelligibly (grammar, syntax, vocabulary, etc.), but also intelligently, appreciating the connection between thought and
language, that the thought itself is as important as its expression. Indeed, if one’s thoughts are unclear, vague, contradictory, or confused, the expression of them will likewise be unclear, etc. Students should know how to formulate, assess, and express their thoughts and ideas clearly and accurately. This is more clearly the focus of the remodelled curriculum than the original.

**History/Social Studies**

The History/Social Science curriculum in the *Cooperative County Course of Study* is superficial and vague, creating potential misunderstanding and mis-learning. Critical thinking standards are not explicit in either the Instructional Objectives or Learner Behaviors. Lower order behavioral responses and a superficial understanding of history and social science are inadvertently encouraged.

The problem with vaguely stated objectives and Learner Behaviors is their likely interpretation, given the dominant mode of instruction in today’s schooling. The didactic paradigm of instruction is still the operant paradigm in most instructional settings. Teachers who were themselves didactically taught are likely to teach didactically. This tendency can be reduced only by bringing principles of critical thought to the fore in philosophical statements, subject-matter curriculum, and instructional examples.

Selected objectives and Learner Behaviors from the first goal are reproduced below. Comments follow, as well as a remodelled goal, objectives, and behaviors.

**Original Curriculum**

Goal 1.0: To acquire knowledge drawn from history, social science, and the humanities

**Objectives**

1.1 To understand the past and present of American, Western, and non-Western civilizations.

1.3 To know the democratic functions of local, state, and national government.

1.4 To know the historical development of issues and concerns of major cultures.

**Learner Behaviors**

Recommends solutions to contemporary economic problems based on the historic ideas, traditions, and institutions of the United States.

Lists the positive and negative aspects of a specific lobby, and supports one group by citing appropriate facts and figures.

Compares the United States position on disarmament to the U.S.S.R. position as related to political, geographic, and economic factors.

Objective 1.1 is very vague. It is given some specificity in the Learner Behavior which focuses on ideas, traditions, and institutions of the American past. However, the Learner Behavior is intended only as one example of what could be done with the objective. In what other ways are we to “understand the past”? This is not clear. It is susceptible to many and divergent interpretations, increasing the potential for shallow coverage.

The words ‘to understand’ in objectives 1.1, and ‘to know’ in objectives 1.3 and 1.4, are also vague and ambiguous. Is there a difference between knowing and understanding? We do not think there is. However, how might these two phrases be interpreted given the dominant mode of instruction in schools? In Bloom’s taxonomy, ‘knowledge’ is synonymous with recall. Objective 1.3 might be interpreted something like this: “To be able to list the different branches and departments of government, and to describe the structure and purpose of each.” Little more than memorization is required to fulfill this objective. The learner behavior becomes, literally, *listing*
"positive and negative aspects of a specific lobby”. This same criticism applies to Objective 1.4 and its accompanying Learner Behavior. A comparison of the Soviet and American position on disarmament may likewise become a list: "We think this, they think that.” Simple lists do not require any understanding of the historical development of the positions, the assumptions underlying them, or the implications following from them. The list itself might not be fair, since citizens of the U.S. tend to think of their weapons as defensive, and Soviet weapons as offensive. Neither is any assessment of the two positions likely to be fair, without significant sympathetic role-playing of the Soviet point of view.

An important objective not included anywhere in this curriculum is insight into the notion that history is written from a point of view. The U.S. has a history, but accounts of this history vary with the point of view of the writer. A history of the U.S. written from the perspective of white male settlers will be very different from one reflecting the perspective of Native Americans, African-Americans, women, immigrants, or the British. Not only should students read historical accounts, they should also be sensitive to differences in perspective, be able to identify the perspective from which any historical report is written, assess this perspective, and, if necessary, rewrite it more objectively.

**Remodelled Curriculum**

**Goal 1.0:** To understand the meaning and significance of history, social science, and the humanities, and to acquire information drawn from them.

**Objectives**

1.1 To learn to think historically; to understand that historical accounts are interpretations of events; and to see how the past has shaped the present and how the present is shaping the future.

1.2 To understand the democratic functions of and purposes for the various branches and departments of local, state, and national government.

1.3 To understand the historical development of major issues and concerns of major cultures.

**Learner Behaviors**

Rewrites historical accounts from a perspective other than the one from which it was written; assesses differing perspectives, and looks for relevant information that might have been left out of an account.

To defend, in writing or orally, the necessity of a branch or department of local, state, or national government to preserving democracy and individual rights; to argue against the necessity of one.

Compares, contrasts, and evaluates the United States and Soviet positions on disarmament, historically, politically, geographically, and economically, retaining a sensitivity to their tendency to favor the position of their own country.

**Science**

The science curriculum in the Cooperative County Course of Study is generally well done. The section reproduced below is representative of the rest of the science curriculum. At times, it tends to waiver between didactic and critical modes of instruction, but does, overall, emphasize and promote independent, critical thought. Students devise experiments to test for various results, and do not merely follow step-by-step instruction on how to set up and conduct tests. They use precise terminology and data in expressing experimental conclusions. They locate, examine, and assess contradictions and discrepancies, and defend a conclusion. They formulate principles about the interdependence of organisms and the implications for survival. The emphasis is on original work, discovery, application, and critical evaluation. Students apply what they learn. They learn to think scientifically, and so better learn science.
**Original Curriculum**

Goal 2.0: To develop and apply rational and creative thinking processes

**Objectives**

2.1 To develop the ability to organize and generate data.

2.2 To develop the ability to apply and evaluate data and generate theories.

2.3 To use data-gathering and theory building processes in problem solving.

2.4 To demonstrate scientific information through the use of models, diagrams, and displays.

**Learner Behaviors:**

Organizes data on the basis of a continuous variable and uses an accepted classification system to order or identify objects or phenomena.

Examines data from different sources for discrepancies and contradictions and defends a conclusion.

Tests a hypothesis by designing an experiment, collecting and recording data, and applies the results to an appropriate theory.

Conducts an original experiment to answer one unresolved scientific question.

Although these objectives and learner behaviors are desirable, there are some potential problems with this section. The science curriculum seems to assume a philosophy of knowledge and learning different from the rest of the curriculum. In the science curriculum the philosophy is more critical than didactic, emphasizing the connection between knowledge, skills, and value. It tends to encourage student discovery, application of knowledge, precision in method and terminology, evaluation of information, and original experimentation. This philosophy, however, is not explicit. Although it may have been assumed by the writers of this section, the possibility for didactic implementation is increased by the failure to explicitly state it.

This, however, is not the only problem with this section. The *Cooperative County Course of Study* science curriculum also has a lengthy list of content to be covered. How are teachers likely to cover this content given the dominant, unexpressed philosophy of education? Given that this dominant philosophy is didactic, instruction may tend toward the easier and quicker lecture-memorization approach. Content may be seen as an end in itself, that students having these bits of information know science. Although a more defensible and better philosophy may be assumed in the science curriculum, failure to state it explicitly may result in instruction contrary to it.

**Conclusion**

Curriculum can provide continuity, consistency, and focus in teaching. There must be, for example, some consistency in instruction and content between different sections of the same subject and level. Curriculum provides this consistency. Students must also be similarly prepared to move from one grade level to the next, one grade picking up where the last ended. This continuity is also provided by the curriculum. All too often, however, the focus is blurred. Curricula are often vaguely and ambiguously written, with heavy emphasis on the specification of content to be covered. One significant reason for this is the absence of a clear and defensible philosophy of education.

The philosophy of education must be explicitly stated to avoid several problems. First, it must be explicit to ensure that the conception of knowledge and learning guiding curriculum development is reasonable and realistic. If we believe that knowledge is best conceived as bits of information, and that learning is the ability to reiterate these bits of information, then we should state
it openly. If, on the other hand, deficiencies of the didactic conception are verbally acknowledged, the implications of this admission should be followed up. The philosophy of knowledge, learning, and teaching must be in harmony with practice.

Second, the relation between knowledge, skills, and values must be explicit to ensure that conflicting conceptions of knowledge and learning do not creep in. Interestingly, in the Cooperative County Course of Study, discovery, application, precision, and critical evaluation have heaviest emphasis in the science curriculum. But, independent, critical thought is equally valuable and necessary in all subject areas. There appear to be two conceptions of knowledge and learning in this curriculum. The first is more didactic, and tacitly implied in all curriculum areas but science. The second is richer, and appears principally in the science section. Lacking explicit articulation, this conflict or contradiction is ignored. Remember, educational practice arises from some conception of knowledge, teaching, and learning. The dominant mode of instruction today is, as it has been for generations, didactic. Research has refuted this superficial approach, but we have not yet broken down the habits that instantiate it. We must now begin to write curricula so that we come to terms with a conception of knowledge, teaching, and learning that takes full cognizance of the intrinsically "thought-filled" nature of each.

The highest development of intelligence and conscience creates a natural marriage between the two. Each is distinctly limited without the other. Each requires special attention in the light of the other.
School time is too precious to spend any sizeable portion of it on random facts. The world, after all, is filled with an infinite number of facts. No one can learn more than an infinitesimal portion of them. Though we need facts and information, there is no reason why we cannot gain facts as part of the process of learning how to think.